a first support plate, attached to the handle; a guide means, attached to the first support plate, for guiding a wallboard tape of predetermined width being applied to a joint; first orifice means, attached to the first support plate, for feeding a first layer of joint compound to a surface of the wallboard tape intermediate the joint and the wallboard tape, the first orifice means fluidically connected to the fluid conduit means; a second support plate, releasably attachable to the handle; biasing means, attached to the second support plate, for yieldably urging the wallboard tape and, hence, the first layer of joint compound, into contact with the wall, when the taping head is in contact with the wall, to embed the wallboard tape in the first layer of joint compound; second orifice means, formed in the second support plate proximate the first support plate, for overcoating the wallboard tape with a second layer of the joint compound, the second orifice means having a width greater than the wallboard tape, the second orifice means being centered, widthwise, with respect to the guide means; first passage means, formed in the second support plate, for fluidically connecting the second orifice means and the fluid conduit means; first gate means, pivotally connected to the second support plate for pivotal movement between a first position and a second position, the first gate means preventing flow of joint compound through the second orifice means when in the first position and allowing flow of joint compound through the second orifice means when in the second position; second biasing means for yieldably urging the first gate means to the first position; third orifice means, formed in the second support plate remote from the first support plate, for overcoating the second layer of the joint compound with a third layer of the joint compound, the third orifice means having a width greater than the second orifice means, the third orifice means being centered, widthwise, with respect to the guide means; second passage means, formed in the second support plate, for fluidically connecting the third orifice means and the fluid conduit means; second gate means, pivotally connected to the second support plate for pivotal movement between a first position and a second position, the second gate means preventing flow of joint compound through the third orifice means when in the first position and allowing flow of joint compound through the third orifice means when in the second position; third biasing means for yieldably urging the second gate means to the first position; first resilient wiper means, mounted on the second support plate intermediate the second orifice means and the third orifice means, for spreading and smoothing the second layer of the joint compound; second resilient wiper blade means, mounted on the second support plate on the opposite side of the third orifice means from the first resilient wiper blade means, for spreading and smoothing the third layer of the joint compound.

In a particularly preferred embodiment, the taping head further comprises roller means, mounted on the second support plate, for imprinting a surface pattern on the third layer of the joint compound, wherein the imprinted surface pattern preferably matches a surface pattern on the wallboard.

THE PRESENT INVENTION

An important feature of the invention is that it provides a superior professional finish to wallboard joints by workers with low experience levels in significantly reduced time. It does this by several related criteria:

1) Close control of the application or administering the proper quantities of joint compound in a three-layer technique as disclosed in my above-identified applications by a microprocessor.

2) Correlating the feed of joint compound to the rate of embedment or laying down of the joint tape and the speed of the human operator.

3) Sensing departures from a predetermined depth of fill and adjusts the "crown" automatically.

In a preferred embodiment this criteria is carried out by flexible floats or blades which have their curvature automatically adjusted to accommodate departures from a predetermined depth or level of the tape. In one embodiment, smoothing rollers are displaceable by variations from a predetermined depth or level of fill and such departures are used to physically adjust the curvature and hence "crown" of the joint compound or "mud". While this could be done mechanically, in a preferred embodiment, motion of the rollers is sensed and transduced to analog signals which, in turn, are digitized by analog-to-digital converters and the digital signals supplied to a microprocessor which tracks these signals. Departures from a predetermined norm are used to produce control signals to adjust the curvature of the flexible floats which, preferably have a parabolic curvature, and which floats smooth one or more joint compound layers which are applied over the tape. In a preferred embodiment disclosed and claimed in my above-identified applications, first and second joint compound layers are applied over the tape and its underlying initial joint compound layer.

The joint compound is smoothed by a related adjustable flexible float means, with the curvature of each float being adjusted by signals from the microprocessor to electric motors mounted in the device.

The adjustable flexible floats or blades are made from any preferably long-wearing material and, in one preferred embodiment, they are hollow brass members sealed at their ends and when a pair (or more) are used, the downstream flexible floats are longer than the upstream flexible floats. The adjustable flexible floats have a generally parabolic curvature which is adjusted to produce the desired "crown" in the joint compound or mud that is in the first and second layers overlying the tape and initial layer.

A preferred (but not exclusive) way of adjusting the flexible floats is by pulling on the lateral end of the blade or floats while pressing in the middle. This can be accomplished by members coupled to the float at the lateral ends which are driven by a motor in one direction while adjacent internal points coupled to the motor are driven in an opposite direction by worm gears, for example. In a preferred embodiment, a natural curve flexible float has an arc which sub-tends the maximum "crown" in the joint compound. However, one would not go beyond the invention by adjusting the "crown" beyond the natural curvature.

In a preferred embodiment, the handle has a plurality of switches as follows:

A first switch in the "on" position allows voltage to be supplied to a pump motor control center located in the pump motor housing. One Hundred Ten volt AC is loaded to the out-going pump current lines by a relay controlled by the microprocessor. One pump receives enough voltage to turn the impeller of the pump for a predetermined period of time to cause static pressure throughout the fluid flow pass to a nominal pressure of about 16lb/psi. A second pump switch is a "kill switch"